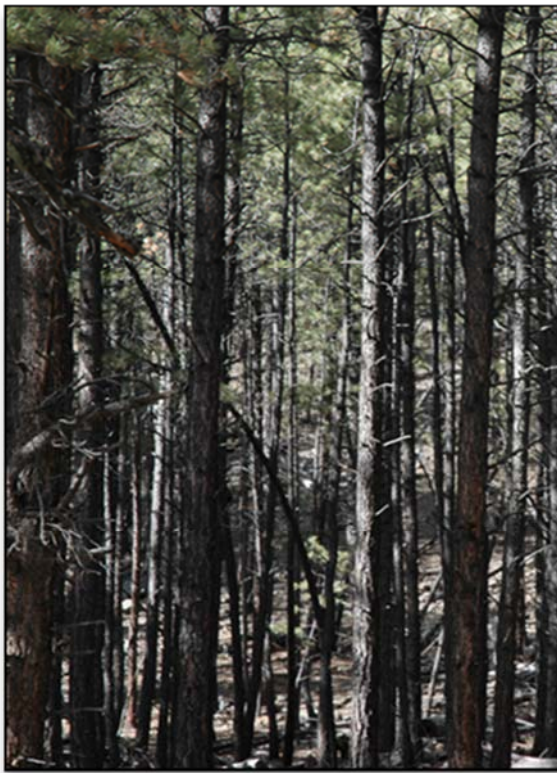


# Findings from the Final Assessment: Twelve Focus Areas and Need for Change Statements

## Santa Fe National Forest New Mexico



Forest Service

Santa Fe National Forest

June 2016

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### **Findings from the Final Assessment: Twelve focus areas and need for change statements.**

The Santa Fe National Forest (Santa Fe NF) has completed a final assessment report as required by the USDA Forest Service's 2012 Planning Rule (36 CFR 219). The assessment is the first phase of the forest plan revision process and provides a baseline of current conditions and trends for 15 resource topics on the Santa Fe NF. The final assessment report can be found in two volumes online at [www.fs.usda.gov/goto/santafeforestplan](http://www.fs.usda.gov/goto/santafeforestplan) under "Forest Plan Documents."

The assessment report is used to help identify portions of the current forest plan that are working well or meeting desired management objectives, and those that are not. Areas that are not working well inform "need for change" statements. Need for change statements are general, do not provide plan direction, and do not necessarily discuss how the plan will address these issues. Rather, they form the bridge between the identification of resource conditions and trends in the assessment and the development of the revised forest plan by presenting where and how the revised forest plan needs to be different from the current plan. These statements provide focus for the second phase of planning – the development of the revised plan – where plan components are created to help ensure management meets desired conditions for each resource.

This document highlights 12 resources that, according to findings from the assessment, have the greatest needs for different plan direction. For each of these resources, the assessment found that current conditions are not meeting management objectives for various reasons. Those conditions and reasons are summarized for each of the 12 resources below. In addition, need for change statements are provided for each of these focus resources.

The intent of identifying and discussing the 12 areas below is that they have the greatest need to change both among all the resources and within themselves. Although the areas discussed here are both individually and as a whole far from where we would like them to be under current management direction, it does not mean that all elements within the resource are in jeopardy. For example, although the trail system as a whole has issues with poorly designed and located trails, there are still many trails that are popular and well-designed. Resources that are not focus areas tend to have more instances where current plan direction is working as designed, although there may still be specific cases where changes are needed in plan direction. Need for change statements for many of these other resources are listed at the end of this document. In contrast, each of the 12 focus resources has many components of existing plan direction that require change. For example, the recreation resource has issues around both developed and dispersed camp sites, trails, and overall sustainability. More can be learned about all resources on the forest including the 12 below in the full assessment report.

Need for change statements on the 12 focus resources below were the primary points of discussion at 10 public meetings held in communities around the Santa Fe NF between October and December 2015. The public provided over 500 recommended "need for change" statements which were considered and incorporated as appropriate into the final statements below. To learn more about the public meetings, the types of need for change statements we received, and why they were or were not included in final need for change statements, see our Need for Change Meeting Summaries document and other materials that are available on our website [www.fs.usda.gov/goto/santafeforestplan](http://www.fs.usda.gov/goto/santafeforestplan) or by request.

# Twelve Focus Areas

## Focus Areas Over Multiple Resources:

### Monitoring

The purpose of monitoring and evaluation is to determine if our management is meeting conditions and objectives laid out by the Forest Plan. However, the type and scale of monitoring in the current plan does not always answer those questions. The current monitoring plan is lengthy, and the forest has had a difficult time carrying out all components of the program as a result of increasingly limited resources. The monitoring questions are often focused on very prescriptive components of the forest plan, such as comparing actual and planned outputs for timber harvest. Also, monitoring components do not take into account how monitoring is conducted beyond the Santa Fe NF boundary, limiting the ability to compare and integrate monitoring data from surrounding areas, and limiting the ability to compare resources on the forest with their status on a larger context scale or even between neighboring forests. Finally, the monitoring plan has not been amended since the current forest plan was published in 1987, and it is out of date with current science and trends in resources, such as the emergence of new recreational opportunities. Since monitoring is an essential component of adaptive management, the problems cited above make it difficult to determine if resource management as described by the plan is working as desired.

### Plan Need for Change

1. There is need for a monitoring program that tracks progress toward desired conditions and allows for a responsive adaptive management program. (e.g., air quality critical loads, species population trends, designated areas such as wilderness, etc.)
2. There is need for monitoring questions and associated indicators that look at the status of resources at appropriate scales.

### Relationships & Partners

Relationships are a key factor that can impact the success of how the Forest Plan is implemented. With the challenges faced by the forest today, strong relationships are not a convenience, but a requirement in order to protect the land and serve the people. Some relationships are good or are getting better while others need work or may have contentious histories with the agency that require improvement in the future. At a public meeting, a participant expressed that “in the past local people have felt dictated to by the agency, and they hope for a new mutually respectful relationship where local residents would work with the Forest Service to make the best plan possible, and that the Forest Service would welcome the partnership.” At a tribal meeting it was also said, “There is a need to continually strive to improve communication, not settle for the status quo.” The forest does not always capitalize on partners who are willing to help. For example, stakeholder involvement is not reaching its potential for the recreation resource, resulting in missed opportunities for positive interactions. This is illustrated by a participant at a public meeting in Santa Fe who shared that “as part of my local mountain biking club, we (could) provide volunteer labor and tools to build trails (in the forest) – we also build sustainable trails.” Finally, the forest struggles to reach all stakeholders, which includes both rural and urban

communities and customers, which challenges our relationships. Poor relationships are costly because they can lead to wasted time and energy through the planning process, misperceptions and miscommunications about the forest's intentions and actions, and ultimately negative impacts on resource management. While the forest plan cannot provide direction beyond the scope of managing resources, on the Santa Fe NF, better relationships and additional partners may be part of strategies that help achieve resource desired conditions.

### **Plan Need for Change**

1. There is a need to include management approaches that build stronger relationships with the public, including but not limited to state and federal agencies, cities and counties, tribal governments, recreational and forest user groups, environmental groups, land grant communities and other traditional communities, local communities, youth, and vendors.
2. There is a need for management approaches that can strategically leverage and streamline processes for engaging partners and volunteers during project implementation, resource protection activities, and monitoring.
3. There is a need for management approaches that emphasize public education about the Santa Fe National Forest's diverse ecological, social, and economic resources, the multiple-use philosophy, public laws and regulations, and management strategies.

## **Vegetation Focus Areas:**

### **Frequent Fire (Low Severity) Systems**

Fire exclusion and past management activities have led to the greatest departure from historical conditions for all ecosystems found on the Santa Fe NF. Fire-dependent ecological response units (ERUs) are highly or moderately departed from historical conditions as a result of lack of fire on the landscape. Specifically, departures in ecosystem characteristics of fire frequency (high for 9 ERUs) and seral state (high for 3, moderate for 7 ERUs) have influenced this drastic change on the landscape, contributing to high departures for other characteristics such as patch size (high for 5, moderate for 3 ERUs) and coarse woody debris (high for 5, moderate for 2 ERUs).

Ponderosa Pine Forest and Mixed-Conifer Frequent Fire are the most highly departed ERUs, with high ratings for all of these characteristics. Historical logging practices removed the largest and most fire resistant trees in stands (also known as "high-grading"). Grazing with unintended consequences during the 19<sup>th</sup> and early 20<sup>th</sup> centuries limited fine fuels (forbs and grasses) that typically carried frequent low-severity fire on the ground. Fragmentation or the construction of roads, trails, and railroad systems also impeded the spread of frequent, low-severity wildfires across the landscape. Along with early 20<sup>th</sup>- century fire suppression, these changes to the landscape have contributed to higher densities of trees, increased fuel loadings, wildfire atypical of historic fire regimes, and altered species composition from mature, fire-tolerant species toward shade-tolerant, less fire-resistant species. The importance of the natural role of fire on maintaining these systems was also recognized by a pueblo who said "Fire plays an important role. That is the component that we didn't have to implement, it was part of nature".

The encroachment and/or increase of shade-tolerant species also increases fuel loadings and can act as ladder fuels, helping surface fire to climb into the canopy of tree crowns and resulting in increased occurrences of crown fire. The increased density of tree groups as a result of the infill of canopy gaps by tree and woody species has also reduced the density and vigor of herbaceous understory plants in forested and woodland types. This is best demonstrated by the high departures for seral state in Ponderosa Pine Forest, Mixed-Conifer Frequent Fire, and Colorado Plateau/Great Basin Grassland and patch size in Ponderosa Pine, Mixed-Conifer Frequent Fire, Juniper Grasslands, Piñon-Juniper Grassland, and Piñon-Juniper Sagebrush. Increased stand densities also contribute to increased competition among trees for resources (increased stress), especially during periods of extended drought. This stress makes the trees more susceptible to insect and disease outbreaks and atypical proportions of high-severity, stand-replacing fire.

Wildfires atypical of historic fire regimes have led to further detrimental impacts including soils which repel water (hydrophobic soils), erosion, and the development of uncharacteristic plant communities (e.g., type conversions) and successional pathways, ultimately threatening the viability of these systems. Along with ecological impacts from wildfires atypical of historic fire regimes, forest users from all backgrounds experience a range of negative impacts to their lifeways following these events. For example, a participant at a public meeting in Los Alamos shared that “due to fires, trails are more open and there is less shade, (though an) advantage is that there are new longer vistas,” while a participant at a public meeting in Albuquerque expressed impacts to traditional communities, stating, “traditional historic communities have an environmental ethic and are stewards of the land...elders...internalized responsibility for burning the upper end of the watershed (during the Las Conchas fire).”

### **Plan Need for Change**

1. There is a need for plan direction that recognizes the natural processes of fire (e.g., natural fire regime) and its use as a management tool to help achieve desired conditions appropriate to each vegetation type (ERU) across the landscape.
2. There is a need for plan direction that allows fire managers the flexibility to manage naturally ignited fires to meet resource objectives based on weather and site-specific conditions (e.g., fuel conditions, topography, safety concerns and values). These actions may include the use of fire to reduce excess fuels, moderating the risk of future high-intensity fires, improving wildlife and range habitat, encouraging aspen regeneration, and improving watershed and overall forest health.
3. There is a need for plan direction that includes the flexibility to manage for all resources when managing wildland fire (i.e., prescribed and natural) to accomplish integrated resource objectives.

### **Grass Cover**

Grassland (Montane Subalpine Grasslands and Colorado Plateau/Great Basin Grasslands), woodland (Juniper Grass, Piñon-Juniper Grasslands, Piñon-Juniper Sagebrush), and shrubland (Sagebrush Shrublands) ERUs have significantly less grass cover and productivity as a result of legacy (historical) grazing with unintended consequences from livestock, increased wildlife grazing, roads, and the exclusion of wildfire. This lack of cover contributes to accelerated

erosion and declined soil productivity, especially during periods of drought. Native grasses on much of the landscape have been replaced with non-native and/or invasive species and are not as effective in the prevention of erosion or as productive for forage.

Erosion can have significant impacts on these ecosystems as dry, low-elevation ecosystems already have shallow productive soil horizons. Soil loss can lead to shifts in species composition with increases in shallow rooted grasses which are less effective in stabilizing soils. These shifts and increases in bare soil can lead to the increased chance of noxious weed and other non-native invasive plant infestation. Reductions in grass cover also decrease the amount of water that penetrates into the soil while increasing the water that runs over the ground. This reduces the amount of water available to plants, creating a loop that continues to reduce vegetative cover. In addition, native grasses on much of the landscape have been replaced with non-native and/or invasive species and are not as effective in the prevention of erosion or as productive for forage.

The encroachment of trees and woody species as a result of decreased fire also threatens these ecosystems by reducing herbaceous cover and lessening the extent of grasslands. This is exemplified by a public meeting participant in Cuba who noted that there are “more trees in meadows now, and traditional maintenance once kept meadows open.” Fire is significant in these systems because it removes litter, limits woody species germination and growth, and allows new lush grasses and shrubs to germinate and take advantage of the short-term release of nutrients in the ash.

#### **Plan Need for Change**

1. There is a need for desired conditions and standards and guidelines that allow for the restoration, conservation, and maintenance of grass productivity and species diversity, emphasizing native grasses.
2. There is a need for desired conditions and standards and guidelines that limit and reverse woody species encroachment into grasslands and infill of shrublands, woodlands, and forested systems.

#### **Riparian Ecosystems**

Riparian systems have been degraded and are at risk across the forest. Higher soil moistures, cooler temperatures, and greater productivity typically characterize riparian areas. However, human alterations to the landscape such as the diversion of waterways, the introduction of invasive plants, unauthorized use by cattle, and heavy recreational impacts are altering these systems. The development of roads, grazing, and recreational use (including trails and dispersed recreation) are deteriorating understory vegetation, causing significant departures from the natural range of variability in species composition and proportion of bare soil. Roads located near riparian areas can also negatively affect stream bank stability, ultimately causing erosion and sedimentation downstream.

Increased water demand (water withdrawal) and climatic changes (e.g., long-term drought) have also deteriorated these systems. Water tables are lower, and there have been decreases in periodic flooding which is necessary for the regeneration of some important riparian species (e.g., cottonwood). This results in shifts in species composition and a reduction in available soil moisture. Bare soil and reduced native species allow for the introduction of invasive species



brought into the area by vehicles, animals, people recreating in the area, and agricultural practices. These invasives, in combination with adjacent uncharacteristically dense vegetation in the uplands, have led to an increased risk of fire from the uplands entering riparian areas where fire is not a natural part of the ecosystem. Loss of riparian vegetation leads to higher water temperatures, increased erosion and sedimentation, and an overall decrease in water quality which negatively affects aquatic biota and wildlife. The impact on wildlife is significant; an endangered species that is a riparian obligate and 15 species of conservation concern are dependent on the riparian area for their habitat. In addition, water users that depend on water resources to sustain their cultural heritage and livelihoods, rely on riparian ecosystem function as an indicator of overall watershed health. Accordingly, a public meeting participant in Abiquiu stated that, “Watershed health for aquifer recharge and surface water supply (is invaluable to) irrigation and livestock.”

### **Plan Need for Change**

1. There is a need for desired conditions to restore or maintain characteristic composition and cover of riparian vegetation.
2. There is a need for standards and guidelines that minimize the ecological impacts of multiple uses in the riparian area.
3. There is a need for management approaches for riparian systems that recognize their reliance on upland ecological health.

### **Restoration of Ecosystem Resiliency**

Resiliency is the ability of an ecosystem to regain structure, composition, and function following disturbance on a time span that is consistent with the dynamics of the ecosystem. At least half of the vegetation types on the Santa Fe NF are highly departed from natural range of conditions for the vegetative characteristics most indicative of systems that are not resilient (fire frequency, seral state proportion, patch size, and coarse woody debris). Only a small percentage (2% or less) of most vegetation types are treated annually on the forest, and restoration is not effective at this small scale. For example, at a public meeting in Los Alamos, a participant said, “I see increased efforts to thin the forest to reduce fire danger, but thinning is going way too slowly.” In addition, the current Forest Plan imposes internal management boundaries (management areas), often with different management direction, which artificially fragments the landscape within the forest boundary and makes it difficult to consistently implement projects on the ground at a large scale.

Stressors compound the challenge to effectively restore ecosystem resiliency. Climate change is predicted to further increase the fire risk, but may also impact ecosystems in unpredictable ways. The ERUs most vulnerable to climate change are both low elevation, Piñon-Juniper Grassland (72%) and Piñon-Juniper Sagebrush (85%) at high and very high vulnerabilities, and high elevation Spruce-Fir (44% at high and very high vulnerability). If predicted warming trends continue, numerous species of conservation concern (SCCs) may be impacted by their inability to adapt to the increased rate of habitat loss and/or the encroachment from non-native species. Species inhabiting high altitude ERUs such as Spruce Fir Forests or Alpine Tundra regions are particularly susceptible due to their inability to advance to higher elevations. Invasive species are continually being introduced and can pose serious threats. Flexibility in management options is essential to maintaining the ability to accommodate both predicted and unpredicted changes as they arise.



### **Plan Need for Change**

1. There is a need for plan direction that minimizes the artificial boundaries imposed by current management area designations, and bases new ones on natural features and/or ecological boundaries (i.e., ERUs).
2. There is a need to develop management approaches that encourage an all-lands approach of working with neighboring land managers to implement projects at a scale that improves landscape connectivity across mixed ownerships where natural systems span multiple administrative boundaries.
3. There is a need for plan standards and guidelines to address the presence of non-native species by encouraging the removal of existing populations, limiting the introduction and spread of new populations while promoting the characteristic composition and condition of native species.
4. There is a need for plan direction that incorporates adaptive management strategies for uncertain future environmental conditions and stressors, such as insect-, disease-, and climate change-induced effects (e.g., increases in fires, severe drought, flooding), making resources more adaptable to changing conditions.
5. There is a need to develop desired conditions for vegetation structure, function, spatial patterns, and species composition at multiple spatial scales (e.g., landscape, patch or stand, and within patch) that supports resilient ecosystems.
6. There is a need to develop holistically-based management approaches and monitoring to restore resilient landscapes because all resources are interdependent.
7. There is a need to develop desired conditions that promote ecological conditions and natural disturbance processes that sustain forest carbon sequestration.
8. There is a need for desired conditions that emphasize silvicultural practices of uneven-aged timber management to provide resilient and sustainable forested ecosystems.

### **Other Resource Focus Areas:**

#### **Water**

Both natural and human-caused disturbances are having impacts on the condition of the water resource across the forest. Although wildfires are a natural disturbance, the increase in intensity and severity in recent years is having a significant impact on watershed health. High burn severity leads to increased rates of soil erosion and sedimentation, negatively impacting water quality. Drought is also having a considerable impact on the forest with a steady decline in the 10-year running averages of annual stream discharge since 1999. A public meeting participant in Mora shared, “It was wetter in the 1970s and ‘80s – we had an intermittent stream on our property, but it hasn’t flowed since the ‘80s,” a sentiment echoed by a Las Vegas public meeting participant who noticed, “Streams that were intermittent are now dry all year round.” In addition, roads are manmade, and their presence on the landscape increases the delivery of water and sediment to the stream networks on and off the forest. Grazing, recreation and other multiple uses also will continue to impact water resources into the future.

The result of these human-caused and natural disturbances across the landscape has compromised perennial stream water quality in many of the watersheds within the Santa Fe NF. While the Santa Fe NF only covers approximately 30 percent of the area at the context scale, the Forest contains nearly half (44 percent) of the perennial stream miles emphasizing the critical nature of water resources on the Forest. In addition, approximately 24% of the perennial stream miles on the forest have been designated by the New Mexico Environment Department as impaired. Impairments vary but can include heavy metals, sediment, temperature, and bacteria.

Water sources on the forest are primarily used for livestock, private inholdings, campgrounds, and administrative sites. Surface water is over allocated (with existing water rights) in the state of New Mexico. This means there is little to no “new” water available to meet future demands. As population around the Santa Fe NF increases, the lack of surface water will place a greater demand on groundwater resources which may deplete surface flows both on and off the forest. The majority of the sub-watersheds on the forest, 87%, are classified as functioning-at-risk or impaired. Water quantity, riparian and wetland vegetation, roads and trails, and soils are the indicators that had the largest impact on the overall watershed score.

### **Plan Need for Change**

1. There is a need to develop standards and guidelines that improve hydrological function and condition of water-dependent systems by maintaining and restoring upland and riparian vegetative cover and reducing erosion and sedimentation from disturbed sites (e.g., reclaiming roads) where feasible.
2. There is a need for standards and guidelines to protect stream channel morphology and function as well as water quality (e.g., 303d listed streams) of all surface waters on the Santa Fe NF.
3. There is a need for plan direction which provides for sustainable groundwater-dependent ecosystems (e.g., seeps and springs, fens, and wetlands) and for the long-term protection of groundwater quality and quantity on the Santa Fe NF.
4. There is a need for plan direction that considers consumptive water uses and water rights because water is over allocated and will continue to be in high demand.

### **Soils**

Soil condition, and soil erosion hazard are directly linked to site productivity and soil resilience. Current soil loss rates exceed natural (minimum) soil loss rates across the Santa Fe National Forest. Generally, this resource is at risk in areas where severe soil erosion hazards coexist with high fuel loadings (high risk of wildfire) and a drying trend that, when combined, may result in high levels of accelerated erosion and decreased site productivity. In Juniper Grass, Pinon-Juniper Grass, Piñon-Juniper Sagebrush, Piñon-Juniper Woodland, Regional Riparian Mapping Project (RMAP) Rio Grande Cottonwood/Shrub, and Sagebrush Shrubland ERUs, current soil loss rates exceed tolerable rates and risk for sustaining inherent site productivity.

Unsatisfactory soil conditions (loss of soil function) occur across 18% of the Santa Fe NF. In general, lower elevations and soils within Ponderosa Pine forest have the greatest risk for unsatisfactory soil condition. Historical grazing with unintended consequences, other management, increased overstories with associated decreased herbaceous cover and increased bare soil, and prolonged drought are negatively affecting soil condition in these areas. Although

the higher elevations (Spruce-Fir, Mixed Conifer with Aspen ERUs) have lower soil condition risks because more coarse woody material and litter are generated as a result of wetter conditions, they are at increased risk for stand-replacing fire which is associated with accelerated erosion and decreased site productivity. This is particularly important in non-timber lower-elevation systems where soil conditions have been especially degraded. Large areas of the forest with unsatisfactory soil condition loss, such as the extreme southeastern portion of the forest, may have persistent loss of soil function because they are not buffered by surrounding satisfactory soil conditions.

Approximately 51% of the soils on the Santa Fe NF fall into the severe soil erosion hazard class while the majority of the rest (48%) fall into the moderate soil erosion hazard class. Very few soils on the forest, less than 1% of the total area, fall into the slight erosion hazard rating. Severe and moderate soil erosion hazard ratings are also prevalent in areas with unsatisfactory soil conditions, which increases the risk to soil function in these areas. Public meeting participants from Rio Rancho, Los Alamos, and Santa Fe, noted that “The ground is hard, rocky, and bare, with no top soil, contributing to stream bank erosion, and drought is causing more dust in the air.” The majority of the Santa Fe NF has a high probability for accelerated erosion due to natural disturbances or management disturbances that expose the soil surface without incorporating erosion control measures.

#### **Plan Need for Change**

1. There is a need to develop standards and guidelines that promote the maintenance and restoration of soil condition and function (e.g., hydrology, stability, and nutrient cycling) by limiting the amount of exposed soil and by restoring and maintaining sufficient vegetative cover, including downed woody material.

#### **Range**

Vegetation analyses show that the grassland types commonly used for livestock grazing are trending towards unsustainable productivity. Declines in herbaceous ground cover as a result of woody encroachment and soil compaction and erosion may affect the long-term ability of national forests to sustain the productivity of rangelands. Another risk includes introduced invasive species that out-compete nutritious native forage. Drought is another factor that impacts this resource. In the past 30 years, an average 11% decline in precipitation has necessitated adjusting numbers and timing of livestock grazing in order to compensate for reduced forage. Long-term climate change models show that these risks share feedback loops and are likely to continue. This is concerning for many communities adjacent to the Forest for whom grazing is a way of life. As a range permittee at a public meeting in Cuba explained, “We use (the forest) for our way of life; ranching. Our boys have grown up in ranching life, which means they have no time to get into trouble.”

Influences beyond the control of forest management are also compounding these effects and increasing the risk to rangelands. They include fractured ownership of private lands, legal uncertainties about land titles, and endangered species listings by the US Fish and Wildlife Service, including the New Mexico Meadow Jumping Mouse which requires strict protections for its riparian habitat.

### **Plan Need for Change**

1. There is a need for plan direction that provides opportunities to use adaptive management for the range program that incorporates ecosystem-based desired conditions, with particular emphasis on strategies to address drought and other extreme weather-related events.

### **Recreation**

The ability of the Santa Fe NF to provide a meaningful recreation program is at risk of being unsustainable. The ways in which people recreate on the forest are not only increasing, but it is changing. The forest has many developed recreation facilities that are utilized below their capacity, are in poor condition, and/or do not meet the needs of today's public. The forest cannot adequately maintain all of its campgrounds to an acceptable standard. Many of its campgrounds have only single-use occupancy campsites that experience low use, because more users desire group campsites. In some areas, the inability of the forest to meet the need for group campsites has resulted in increased impacts from dispersed camping. The facilities maintenance backlog has continued to increase, resulting in inadequately maintained recreation sites and a poorer recreational experience for users. Much of the forest's trail system is old and does not meet the needs of today's recreation enthusiast. For example, at a public meeting in Santa Fe, a participant said, "I like to use the forest in many ways. In the winter I ski and snowshoe. In the summer, spring, and winter I like to mountain bike, hike, picnic, and improve the area through trail building." Further, many trails are poorly designed and located, with limited intrinsic value for hikers looking for scenic beauty and challenging hikes. Most of the trails are in disrepair, not conveniently located for users, and/or provide an insufficient recreational experience.

### **Plan Need for Change**

1. There is a need for plan direction on sustainable recreation management to provide high quality recreational experiences that are consistent with the Santa Fe National Forest's social, environmental, and economic resource capacity.
2. There is a need for plan direction to address the long-term sustainability, changing trends in services, and intended use of recreation infrastructure and facilities. For example, trails that permit equestrian use should have trailhead parking that accommodates horse trailers.
3. There is a need for desired conditions and standards and guidelines for managing recreation activity impacts that occur in areas sensitive to resource degradation or at risk due to high visitation.
4. There is a need for plan direction to address user conflicts (e.g., between motorized and non-motorized trail users).

### **Infrastructure**

The Santa Fe NF's ability to maintain its current infrastructure is severely threatened. Although there are about 6,900 miles of roads on the landscape (per infrastructure database, INFRA), only about 2,200 miles of roads are open to the public and forest users for motorized use. These are the roads on the Motor Vehicle Use Map (MVUM), which provide access to both recreationists and other forest users. The remaining 4,700 miles of roads may be administrative use roads or

non-system roads (undetermined/unauthorized, other jurisdiction, or decommissioned). Most of these roads still contribute to erosion and sedimentation. Off-forest improvements to highways that connect to these roads and growing local populations have contributed to an increase in use.

Ownership changes on adjacent lands, unresolved legal issues, new off-forest right-of-way regulations, and on-forest dams not owned by the Forest Service all complicate management and increase costs. The largest ecosystem drivers impacting forest access are extreme wildfires and floods which impact the integrity of these systems, thereby continually adding to the already-massive deferred maintenance backlog on roads and administrative facilities.

The forest is engaging its stakeholders through road maintenance agreements, but a critical and growing gap in resources for maintenance of facilities and roads still exists. For example, at a public meeting in Cuba, a participant expressed, “Road closures, and not being able to access (the forest) are my biggest concern.”

Infrastructure on the forest refers to more than what is considered infrastructure in urban settings. There is also infrastructure related to rural and agronomic uses, such as timber harvesting and rangeland management. Much of the range infrastructure (some of which may be the responsibility of the permittee) across the forest is non-functional and/or in need of maintenance or decommissioning. Non-functional water developments force cattle to seek water in riparian areas, sensitive systems where it is inappropriate for them to graze. Downed fencing can contribute to cattle in these riparian areas and other areas they are not supposed to be. Unmaintained and vandalized range improvements can be hazardous for wildlife.

### **Plan Need for Change**

1. There is a need for plan direction to ensure sustainable infrastructure (e.g., roads, recreation and administrative facilities, range improvements, maintenance, etc.).
2. There is a need for desired conditions regarding the Forest’s road system and standards and guidelines to address negative impacts of existing roads.

### **Land Status and Ownership**

The Lands program on the Santa Fe NF is stretched beyond its ability to keep up with increasing demands on its services; including access issues (in general and to private inholdings), encroachments from private land onto National Forest System land, title claims, evolving requests for communication sites, the ever-growing Wildland Urban Interface (WUI) area, completing property boundary surveys, and fragmentation. As a public meeting participant in Chimayo noted, “Communities are there *because* of the Forest.” As those traditional communities grow in population and infrastructure needs, it is becoming more challenging for the Forest to keep up with the increasing demands of this resource area.

Property owners within areas considered WUI often make requests for access and utility infrastructure across Forest Service lands. When wildfires threaten large-scale destruction of private property, millions of dollars are spent defending these private lands and property, and additional pressure is placed on forest management to accommodate the rebuilding process, including road and other infrastructure reconstruction, after damage occurs. In recent years, the real estate industry has enforced tighter standards for marketable and insurable title, which has

resulted in a larger workload for lands and boundary management on the forest. In addition the subdivision (fragmentation) of private parcels increases demands for utilities and access to the forest.

### **Plan Need for Change**

1. There is a need for standards and guidelines that address how access to private lands is authorized so as to minimize natural resource damage while ensuring rights of access to private lands are respected.
  2. There is a need for standards and guidelines that minimize resource damage to NFS lands when evaluating placement of infrastructure for land development (i.e., authorization of use and occupancy) specifically as it relates to the expansion of the WUI.
  3. There is a need for plan direction for the authorization, location, maintenance, and inspection of current and future utility and communication site infrastructure because there is an increasing demand on the forest for these services.
  4. There is a need for plan direction that encourages the protection of existing public access rights and the acquisition of new recreational access opportunities to National Forest lands.
  5. There is a need for management approaches that emphasize better coordination between local governments and the Forest Service for permits, leases, and easements on National Forest lands.
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## **Non-Focus Area Resources**

### **Changes throughout the Plan**

Each National Forest is governed by a management plan in accordance with the National Forest Management Act (NFMA). These plans set management, protection, and use goals and guidelines. Monitoring conditions on a forest ensures projects are done in accordance with plan direction and determines effects that might require a change in management. Since the release of the current Forest Plan in 1987, the Forest (and surrounding communities) has experienced considerable socioeconomic and ecological change and there have been significant improvements in technology and science. As a result of these continuously dynamic conditions, the Forest Plan has to be a flexible and adaptable document, over time.

### **Plan Need for Change**

1. There is a need for plan direction that is more strategic than prescriptive (e.g., define desired conditions with objectives for how each resource should be managed).
2. There is a need for removing components that are redundant with existing laws, regulations, and Forest Service policy. These will be incorporated in the revised plan by specific reference only, which will allow the plan to be up to date with the most recent versions without amendments.
3. There is a need to remove current plan direction that requires developing additional planning documents, many of which require updates on a regular cycle (e.g., recreation)

4. There is a need to incorporate best available scientific information (BASI) into all plan components (e.g., desired conditions, objectives, standards, guidelines, and management approaches).
5. There is a need to consider new designated areas as well as management areas or geographic areas with their own specific plan components.

## **Wildlife, Fish, and Plants**

The Santa Fe NF is home to hundreds of animal, plant, and fungi species, some of which are found only on the Santa Fe NF. For a few species, changing land use patterns outside of the forest have reduced potential habitat availability and increased the species' reliance on Santa Fe NF managed lands. At-risk species were evaluated for the Santa Fe NF and include federally recognized, threatened, endangered, proposed, and candidate species, as well as potential species of conservation concern (SCC). Criteria for identifying potential species of conservation concern include that 1) the species is native, and known to occur in, the plan area, and that 2) best available scientific information indicates a substantial concern about the species' capability to persist over the long term in the plan area. A total of 36 at-risk species were identified, four federally recognized and 32 SCC. The most at-risk species were associated with Riparian (13 species), Spruce-fir (10 species), Ponderosa Pine (9 species), and Mixed Conifer with Aspen (9 species) and Mixed Conifer-Frequent Fire (8 species) ERUs. Restored, resilient, and connected habitats with an emphasis given to ecological conditions that benefit these species are necessary to maintaining species diversity across the forest.

Wildlife and fish resources are also important for the utilitarian and commodity-oriented uses they provide. The forest supports habitat for legally fished and hunted species managed by the NM Department of Game and Fish and six important bird areas (IBA) designations. Plants are important to cultural and traditional uses such as Christmas tree cutting and gathering forest products for medicinal and ceremonial use. Finally, wildlife related activities (e.g., outfitter guide services) on the forest have important contributions to local economies.

### **Plan Need for Change**

1. There is a need for desired conditions and standards and guidelines that support ecological conditions that contribute to the recovery and conservation of federally listed species (threatened and endangered), maintaining viable populations of the species of conservation concern, and maintaining common and abundant species.
2. There is a need to develop standards and management guidelines for the restoration or maintenance of ecological conditions (e.g., restoring plant and animal communities with altered or changing species composition and structure so they will be resilient over time and meet the habitat needs for a diversity of native plant and animal species, including suitable habitat for rare species).
3. There is a need to develop standards and guidelines that address terrestrial and aquatic habitat connectivity for species migration, including direction for the restoration and expansion of native aquatic species range and connectivity of fragmented populations by improving aquatic passages.



## **Air**

Air quality and the values dependent on air quality on the Santa Fe NF are generally in good condition or are improving as most pollutants are decreasing as a result of stricter regulations. However, visibility and ambient air quality conditions associated with particulate matter are expected to increase likely as a result of larger, more severe wildfires and increases in fugitive dust as the effects of climate change are realized. Modeled critical loads from nitrogen deposition are also being exceeded for many ecosystem components, including lichens, forests, herbaceous plants and shrubs, and nitrate leaching particularly at higher elevations. Excessive deposition may lead to adverse effects on ecosystems and on other resources (e.g., cultural). Acid deposition can lead to changes in the pH of stream runoff and adverse effects on aquatic species. Excessive nitrogen deposition can “over-fertilize” sensitive ecosystems, thereby promoting unnatural eruptions of native and nonnative plant species, invasions by noxious species, reduction and elimination of sensitive native species, and altering long-term patterns of nutrient cycling.

### **Plan Need for Change**

1. There is a need for plan direction for air quality in terms of ambient air quality, visibility, and critical loads.

## **Socioeconomic Resources**

Primary demands for uses on the forest include recreation, grazing, and hunting. Fuelwood is also keenly important as critical to heat families’ homes. A public meeting attendee in Pecos noted, “(The forest) is a place to gather firewood for our families cold winters.” The demand for traditional uses is expected to continue while demand for recreational uses is likely to increase. Santa Fe NF contributes to the livelihoods of area residents both through subsistence uses (i.e., fuelwood, livestock grazing) as well as market-based (i.e., timber and recreation) economic production. The contribution of the Santa Fe NF to employment and labor income to the surrounding area is small, less than one percent. Recreation, in particular downhill skiing, contributes the most to employment in the area, but grazing is also important to the local economy and the agriculture sector is the most reliant on Forest Service activities as a percent of total jobs in the area.

### **Plan Need for Change**

1. There is a need for plan direction that recognizes the Santa Fe National Forest’s role in contributing to local economies, including service-based sectors such as recreation and tourism, timber, and other multiple-use related activities and products.

## **Designated Areas**

Designated areas are specific areas or features within the plan area that have been given a permanent designation, through statute or administrative processes, to maintain a unique special character or purpose. Designated areas on the Santa Fe NF include four wilderness areas, three wild and scenic rivers, 55 inventoried roadless areas, two research natural areas, designated and proposed critical habitat for three species, three national scenic trails, a national recreation area, and eight scenic byways. The qualities of these areas that led to their designations serve as

additional attractions and provide needed economic income, especially for smaller communities. Designated special areas contribute to social sustainability by connecting people to their natural and cultural heritage, and providing recreation opportunities. Designated areas contribute to ecological sustainability as well, by preserving intact natural systems and their individual components.

### **Plan Need for Change**

1. There is a need to update plan direction for designated wilderness areas and recommended wilderness areas in order to protect and enhance wilderness values and character.
2. There is a need for plan direction to identify and evaluate potential additions to the National Wilderness Preservation System and eligibility of rivers for inclusion in the National Wild and Scenic Rivers System.

### **Scenery**

The scenery of the Santa Fe NF contributes to its sense of place and identity, with a wide variety of spectacular ecological and cultural features. People are drawn to the Forest for its diversity of scenic features including higher elevation spruce-fir forests, aspen adding brilliant gold during autumn, lush high mountain meadows filled with wildflowers, dramatic landforms with vibrant colors, breath-taking red rock canyons and cliffs, sandstone bluffs, and mountain peaks. The public has identified the diversity of the Santa Fe NF's scenery as a highly valued and important asset for adjacent communities and forest visitors. Trends to spend more time on the Forest and enjoy the natural scenic beauty of the forest environment exist since viewing natural features or scenery has been among the top two recreation activities on the forest. Following national trends, more demand and use are anticipated for scenery-related recreation activities.

### **Plan Need for Change**

1. There is a need for plan direction to integrate scenery management into all resource management decisions with the intent of retaining and enhancing scenic resources while integrating with other resources (e.g., restoration, habitat diversity, and timber management).

### **Cultural Resources**

Human occupation on the Santa Fe NF and surrounding lands is concurrent with the earliest human occupation in the Western Hemisphere. As a result the Santa Fe NF includes the locations of numerous Historic Properties and Traditional Cultural Properties. We heard that "tribes and the forest are one and the same, they are tied to each other," and religious locations that are natural features such as mountains or peaks are "just as important as a cathedral, even though they are natural places." There is concern around the protection of sacred sites as well as the management of effects to ancestral sites. Site densities vary from 10 or fewer to over 60 sites per square mile with only about 15% of the forest inventoried to an acceptable standard. Properties and sites are vulnerable to degradation by both natural (i.e., erosion and high severity wildfire), and human processes (i.e., recreation and construction related to land development), which affect

their intrinsic cultural value. Historic properties are a major source of information regarding the history of human occupation of the plan area. In addition, the cultural importance of the land itself and the connection of local communities to that land is an important part of their cultural identity.

### **Plan Need for Change**

1. There is a need for plan direction to stabilize, preserve, interpret, and protect historic and sensitive properties, (e.g., archaeological sites, historic structures, and traditional cultural properties).
2. There is a need for plan direction that recognizes the inherent value and preservation of Native American traditional cultural properties and sacred sites, as well as non-Native American traditional cultural properties, while maintaining the anonymity of such sites where appropriate.

### **Traditional and Cultural Ways of Life**

The Santa Fe NF is surrounded by communities that have been living on and using the land for the past 12,000 years. As a defining element of northern New Mexico's cultural context, the lands of the Forest have continuously provided economic, social, and religious value to Native Americans, Hispanics, and Anglo-American traditional communities. The span of these diverse uses include fuelwood and its importance for heating homes and cooking, the tradition and economic importance of grazing, hunting for subsistence and cultural purposes, maintaining acequias, and gathering forest products for ceremonies. The continued use and access to the Forest for these purposes contributes greatly to the preservation of local culture and tradition. A participant at a public meeting in Cuba explained the depth of connection between the Forest and local customs and culture, saying, "From wood, herb and floral gathering, harvesting the rich earth for my abuelitos (grandparents), and hauling water to their gardens in the time of drought, to grazing sheep...(the forest provides) culture and sense of community." Because of these realities, forest management can, and often does, have a personal impact on traditional and cultural ways of life.

### **Plan Need for Change**

1. There is a need for plan direction that recognizes the deep and historic ties between nearby populations and the forest and that aims to protect historic and contemporary cultural uses, including both economic and non-economic uses for tribes and traditional communities not considered under tribal relations (e.g., traditional Hispanic and Anglo communities).

### **Areas of Tribal Importance**

The Santa Fe NF routinely consults with 14 New Mexico based federally recognized tribes as well as tribes in other states and a government-to-government relationship is maintained for interactions and consultation with these sovereign Indian nations. Santa Fe NF lands are part of many tribe's aboriginal or traditional use areas as well as places for contemporary uses including cultural and religious activities. Conditions and trends that are influencing tribal use of the Forest and impacting areas of tribal importance include changes in land ownership; high severity wildfires and degradation of forest health and watershed conditions; changing technologies and energy development; population growth, urban pressures and expanding recreation use; and development of private land. In conversations with the tribes, many express a strong desire for

shared stewardship of National Forest System lands, “Can the tribes and Forest Service do something together to help reduce threats and create resiliency?”

#### **Plan Need for Change**

1. There is a need for management approaches that include opportunities for integrating forest management with tribal needs through shared stewardship to address threats to adjacent tribal resources (e.g., through the Tribal Forest Protection Act (TFPA) of 2004), to meet common objectives identified in tribal and pueblo land management plans, and to utilize an “all lands” approach to resources management.

#### **Extractive multiple uses**

Timber sales for the Forest peaked in the late 1970s and early 1980s when products were primarily saw-logs used to make boards for lumber. Since then, the majority of material is in the form of fuelwood and smaller forest products (e.g., vigas, latillas, coyote fencing) which have significance for both their traditional and cultural importance as well as their economic contributions. Mechanized harvesting of forest products is also an important component to maintaining appropriate vegetative characteristics and promoting desirable ecological processes and function.

There are varying degrees of potential for the production of a variety of renewable and nonrenewable energy sources on the Santa Fe NF including oil and gas, coal, geothermal energy, wind energy, hydroelectric power, biomass, and a variety of salable minerals (e.g., sand and gravel, decorative stone), and locatable minerals (e.g., copper).

#### **Plan Need for Change**

1. There is a need for plan direction that provides for the use of a variety of forest products by commercial, noncommercial, tribal, and land grant users.
2. There is a need for plan direction that allows for flexible size criteria regarding timber extraction to balance desired conditions and the ability to provide economically viable forest products.
3. There is a need for plan direction regarding traditional and alternative energy sources (e.g., oil, gas, geothermal, wind, solar, biomass, etc.) that balances demand with natural resource impacts.